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EXAMINER	
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ART UNIT	PAPER NUMBER
2114	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/733,284	HO ET AL.
	Examiner	Art Unit
	Joshua A Lohn	2114

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *56-64* is/are allowed.

6)☒ Claim(s) *1-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4,7*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

FIRST NON-FINAL ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al, United States Patent number 5,473,599, filed April 22, 1994, in view of Tsukakoshi et al., United States Patent number 6,577,634, filed June 30, 1999.

As per claim 1, Li discloses a network device having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby

controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 2, Tsukakoshi discloses a possible routing protocol state change that includes a Routing Internet Protocol (RIP) state change, see column 7, lines 13-21.

As per claim 3, Tsukakoshi discloses the replicating of state changes to the standby systems occurring in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 4, Tsukakoshi discloses receiving or generating a routing protocol message by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 5, Tsukakoshi discloses the routing protocol message including an RIP message.

As per claim 6, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing protocol state changes that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 7, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 8, Li discloses a network device including a standby controller system, or router, and an active controller system, or router, see column 2, lines 16-31. Li discloses the active system receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 9, Tsukakoshi discloses a possible routing protocol state change that includes a Routing Internet Protocol (RIP) state change, see column 7, lines 13-21.

As per claim10, Tsukakoshi discloses the replicating of state changes to the standby systems occurring in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 11, Tsukakoshi discloses receiving or generating a routing protocol message by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 12, Tsukakoshi discloses the routing protocol message including an RIP message.

As per claim 13, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing protocol state changes that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 14, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and

Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 15, Tsukakoshi and Li disclose the network device including a network router, see column 2, line 27 of Li, and column 3, line 10 of Tsukakoshi.

As per claim 16, Li discloses a network device having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active

control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

The combined invention of Li and Tsukakoshi fail to disclose the routing protocol state change being a change of the Border Gateway Protocol (BGP).

It would have been obvious to one skilled in the art at the time the invention was made to include the generation and reception of Border Gateway Protocol state changes in the invention of Li and Tsukakoshi.

This would have been obvious because Tsukakoshi discloses a network of autonomous systems, see Figure 2, in which protocol information is exchanged between hosts, each containing their own router, see column 2, lines 11-15, and column 3, lines 20-22. The Border Gateway Protocol is defined as being used for exchanging information between hosts on a network of autonomous systems. Tuscaloosa further discloses the use of multiple routing protocols to implement routing functionality, see column 3, lines 18-20. It would have been obvious to include BGP as one of the multiple supported routing protocols to allow for the information exchange between autonomous host systems as described above.

As per claim 17, Tsukakoshi discloses the replicating of state changes, which are obviously BGP state changes, to the standby systems occurring in realtime, see column 7, lines

13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 18, Tsukakoshi discloses receiving or generating a routing protocol message, which could obvious be BGP messages, by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 19, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi all routing protocol state changes, which are obviously BGP protocol state changes, that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 20, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 21, Li discloses a network device having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li also discloses the use of the Transmission Control Protocol (TCP) in the controller systems as a means for sending status information, see column 8, lines 3-8. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of

Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

It is also obvious that Tsukakoshi and Li also teach of the state changes being of the Border Gateway Protocol, as shown in the rejection of claims 16-20.

As per claim 22, Tsukakoshi discloses the replicating of state changes, including any TCP changes taught by Li, to the standby systems occurring in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 23, Tsukakoshi discloses receiving or generating a routing protocol message, such as a TCP message taught by Li, by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 24, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing protocol state changes, including the TCP messages taught by Li, that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 25, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 26, Li discloses a network device having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li also discloses the use of the Transmission Control Protocol in the controller systems as a means for sending status information, see column 8, lines 3-8. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62.

It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 27, Tsukakoshi discloses the replicating of state changes, including any TCP changes taught by Li, to the standby systems occurring in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 28, Tsukakoshi discloses receiving or generating a routing protocol message, such as a TCP message taught by Li, by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 29, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing

protocol state changes, including the TCP messages taught by Li, that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 30, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 31, Tsukakoshi and Li disclose the network device including a network router, see column 2, line 27 of Li, and column 3, line 10 of Tsukakoshi.

As per claim 32, this claim is a software implementation of the device of claim 1. Li discloses that all operations in the system can be activated or reconfigured by a computer program stored in memory, see column 5, lines 10-26.

As per claim 33, this claim is a software implementation of the device of claim 4. Li discloses that all operations in the system can be activated or reconfigured by a computer program stored in memory, see column 5, lines 10-26.

As per claim 34, this claim is a software implementation of the device of claim 6. Li discloses that all operations in the system can be activated or reconfigured by a computer program stored in memory, see column 5, lines 10-26.

As per claim 35, this claim is a software implementation of the device of claim 7. Li discloses that all operations in the system can be activated or reconfigured by a computer program stored in memory, see column 5, lines 10-26.

As per claim 36, Li discloses a network node having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li suggests one or more peer nodes through communication to nodes outside the LAN, see column 2, lines 18-20, but fails to explicitly teach of their existence. Li also fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses the existence of one or more peer nodes, see figure 2.

It would have been obvious to one skilled in the art at the time the invention was made to include the one or more peer nodes of Tsukakoshi.

This would have been obvious because Li discloses communicating outside the LAN. Tsukakoshi discloses a typical structure that exists outside of a LAN. It would have been obvious to combine Li and Tsukakoshi to provide a more accurate representation of what is meant by the communications outside the LAN being performed by Li.

Tsukakoshi also discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 37, Tsukakoshi discloses a possible routing protocol state change that includes a Routing Internet Protocol (RIP) state change, see column 7, lines 13-21.

As per claim 38, Tsukakoshi discloses the replicating of state changes to the standby systems occurring in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 39, Tsukakoshi discloses receiving or generating a routing protocol message by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 40, Tsukakoshi discloses the routing protocol message including an RIP message.

As per claim 41, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing protocol state changes that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 42, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and

Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 43, Tsukakoshi and Li disclose the network device including a network router, see column 2, line 27 of Li, and column 3, line 10 of Tsukakoshi.

As per claim 44, Li discloses a network device having a redundancy platform including an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li also discloses the use of the Transmission Control Protocol (TCP) in the controller systems as a means for sending status information, see column 8, lines 3-8. Li suggests one or more peer nodes through communication to nodes outside the LAN, see column 2, lines 18-20, but fails to explicitly teach of their existence. Li also fails to disclose replicating the received or generated routing protocol state change to the standby controller system.

Tsukakoshi discloses the existence of one or more peer nodes, see figure 2.

It would have been obvious to one skilled in the art at the time the invention was made to include the one or more peer nodes of Tsukakoshi.

This would have been obvious because Li discloses communicating outside the LAN. Tsukakoshi discloses a typical structure that exists outside of a LAN. It would have been obvious to combine Li and Tsukakoshi to provide a more accurate representation of what is meant by the communications outside the LAN being performed by Li.

Tsukakoshi also discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

It is also obvious that Tsukakoshi and Li also teach of the state changes being of the Border Gateway Protocol, as shown in the rejection of claims 16-20.

As per claim 45, Tsukakoshi discloses the replicating of state changes, including any TCP changes taught by Li, to the standby systems occurring in realtime, see column 7, lines 13-

21, where the packet is generated and then immediately sent to all other routers in the clustered router.

As per claim 46, Tsukakoshi discloses receiving or generating a routing protocol message, such as a TCP message taught by Li, by the active controller system, and selectively replicating the received or generated routing protocol message in the standby controller system, see column 3, lines 10-49, where only packets generated to use NISP are selectively replicated throughout the cluster to all active and standby systems.

As per claim 47, Li discloses the detection of a failure in the active system by the standby system, see column 6, lines 59-62. With the message replication of Tsukakoshi, all routing protocol state changes, including the TCP messages taught by Li, that were completed prior to failure should have been replicated in the standby controller system, see column 7, lines 5-45.

As per claim 48, it is inherent in the invention of Tsukakoshi and Li that the system performs Internet Protocol layer 3 service. This is inherent because Internet Protocol layer 3 service is performed in the routing level of the system and both Li, see column 2, line 27, and Tsukakoshi, see column 3, line 10, teach of the invention utilizing a group of routers, which must operate at the routing level.

As per claim 49, Tsukakoshi and Li disclose the network device including a network router, see column 2, line 27 of Li, and column 3, line 10 of Tsukakoshi.

As per claim 50, Li discloses a network device having an active controller system, or router, and a standby controller system, or router, see column 2, lines 16-31. Li discloses receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Li discloses detecting a failure in the active system, see column 6, lines 59-62. Li also discloses resuming operation by the standby controller system using information backed up from the active controller, see column 2, lines 16-30. Li fails to disclose replicating the received or generated routing protocol state change to the standby controller system as a method of backup.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems to have an accurate copy of the state, see column 7, lines 13-21. This replicating of state changes to the standby systems occurs in realtime, see column 7, lines 13-21, where the packet is generated and then immediately sent to all other routers in the clustered router.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have

need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 51, Li discloses switching over operation of the active system to the standby system such that a peer node does not observe the switchover, see column 2, lines 28-30.

As per claim 52, Li discloses resuming operation by the standby controller system such that a routing protocol session with active system is not torn down, see column 2, lines 16-30, where the virtual router is always kept active and responsive to continuously provide session availability.

As per claim 53, Li discloses a network device including a standby card, or router interface, see column 5, lines 40-44, and an active card, or router interface, see column 2, lines 16-31. Li discloses the active router receiving or generating a routing protocol state change by the active controller system, see column 8, lines 46-59. Routing state changes would include information stored on and provided by the active system including persistent data, like authentication and version numbers, session states, in the router status, and routing information,

such as IP address and group number, see column 10, line 66 through column 11, line 9. Li fails to disclose replicating the received or generated routing protocol state changes to the standby controller system.

Tsukakoshi discloses a system to receive or generate a routing protocol state change by an active system, and to replicate the received or generated routing protocol state change to the other controller systems, see column 7, lines 13-21.

It would have been obvious to one skilled in the art at the time the invention was made to include the protocol state change replication of Tsukakoshi in the network redundancy system of Li.

This would have been obvious because Li discloses generating and receiving protocol state change information, see column 8, lines 46-59. Li also discloses a desire to have a standby controller that is capable of assuming the role of the active controller, see column 6, lines 58-62. It would have been obvious to one skilled in the art that the standby control system would have need of any protocol state changes to successfully assume the role and activities of the active control system. Tsukakoshi discloses a system that allows for the full replication of all state changes to every router, which acts as a control system, in the cluster, see column 7, lines 13-21. The cluster of Tsukakoshi and the group of Li are both comprised of a collection of router control systems. It would have been obvious to one skilled in the art that the system of Tsukakoshi could be easily implemented in the invention of Li to allow for a seamless and efficiently transition from standby to active.

As per claim 54, Tsukakoshi and Li disclose the active card generating changes to the persistent data, session states and routing information and replicating the changes to the standby card, see column 7, lines 6-45 of Tsukakoshi, where the routing protocol information that is generated and used by both Li and Tsukakoshi is replicated.

As per claim 55, Tsukakoshi discloses the active system receiving all necessary status information, as described in Li above, through use of a "Boot" packet, see column 6, lines 1-28.

Allowable Subject Matter

Claims 56-64 are allowable.

The following is a statement of reasons for the indication of allowable subject matter: Claims 56-64 are considered allowable for including, within the context of all the limitation of the claims, the limitations of receiving a commitment to the routing protocol state change from the standby controller system, committing to the routing protocol state after receiving the commitment from the standby controller, and sending the commitment to the peer node.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is provided on from PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua A Lohn whose telephone number is (703) 305-3188. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoleil can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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JAL

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